

AMENDMENTS

In the Claims

Please cancel claims 2, 24, and 30-31 without prejudice.

Please amend claims 1, 4-11, 13, 20-23, 25-29, 32-49, 52, and 54-55 as shown herein.

Claims 1, 3-23, 25-29, and 32-56 are pending and are listed following:

1. (currently amended) A method, comprising:

receiving a synthesizer MIDI instruction to generate multiple streams of audio wave data with a synthesizer software component;

receiving ~~multiple streams of audio wave data in response to~~ requests from audio data buffers ~~wave data consumers~~ to route the multiple streams of audio wave data from the synthesizer software component to the audio data buffers;

dynamically generating a plurality of logical buses ~~instantiated as software components in response to a need associated with receiving the streams of audio wave data,~~ the logical buses each corresponding to an audio ~~wave data consumer~~ data buffer;

assigning at least one of the ~~multiple streams of~~ audio wave data ~~stream~~ to a plurality of the logical buses;

routing any audio wave data stream assigned to a particular logical bus to the audio ~~wave data consumer~~ data buffer corresponding to said particular logical bus; and

dynamically releasing at least one of the logical buses when no longer needed to route a stream of audio wave data.

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2. (canceled)

3. (original) A method as recited in claim 1, wherein a plurality of audio wave data streams are assigned to at least one of the logical buses.

4. (currently amended) A method as recited in claim 1, wherein each logical bus corresponds to a single audio data buffer ~~wave data consumer~~.

5. (currently amended) A method as recited in claim 1, wherein at least two of the logical buses correspond to the same audio data buffer ~~wave data consumer~~.

6. (currently amended) A method as recited in claim 1, wherein the audio ~~wave data consumer is a~~ data buffer ~~that~~ performs an action of buffering audio wave data prior to outputting the audio wave data.

7. (currently amended) A method as recited in claim 1, wherein the audio ~~wave data consumer~~ data buffer performs an action of effects-processing the audio wave data prior to outputting the audio wave data.

8. (currently amended) A method as recited in claim 1, wherein said assigning comprises creating a data structure and correlating the logical buses with corresponding audio data buffers ~~wave data consumers~~.

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2 **9. (currently amended)** A method as recited in claim 1, wherein
3 said assigning comprises creating a data structure and correlating the logical buses
4 with corresponding audio data buffers ~~wave data consumers~~, and wherein said
5 routing comprises referring to the data structure.

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7 **10. (currently amended)** A method as recited in claim 1, wherein
8 said ~~defining~~ generating comprises instantiating a programming object to receive
9 the multiple streams of audio wave data.

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11 **11. (currently amended)** A method as recited in claim 1, wherein
12 said ~~defining~~ dynamically generating comprises instantiating a programming
13 object to receive the multiple streams of audio wave data, and wherein said routing
14 comprises calling an interface of the programming object.

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16 **12. (original)** One or more computer-readable media comprising
17 computer-executable instructions that, when executed, direct a computing system
18 to perform the method of claim 1.

1 **13. (currently amended)** An audio generation system
2 implemented in a computing device, the audio generation system comprising:

3 a plurality of audio wave data sources ~~that produce one or more~~ from which
4 streams of audio wave data are generated by a synthesizer software component;

5 a plurality of audio wave data consumers ~~that~~ configured to receive one or
6 more of the streams of audio wave data;

7 a software component ~~that~~ configured to:

8 dynamically ~~generates~~ generate logical buses ~~in response to a need~~
9 ~~associated with receiving~~ instantiated as software components to route the
10 streams of audio wave data to corresponding audio wave data consumers;
11 ~~and that releases~~

12 release at least one of the logical buses when no longer needed to
13 route a stream of audio wave data to a corresponding audio wave data
14 consumer, the logical buses corresponding respectively to the plurality of
15 audio wave data consumers; and

16 ~~the software component configured to~~ receive one or more of the
17 streams of audio wave data at each of the generated logical buses, and route
18 any audio wave data that is received at a particular logical bus to an audio
19 wave data consumer corresponding to said particular logical bus.

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21 **14. (original)** An audio generation system as recited in claim 13,
22 wherein each logical bus corresponds to a single audio wave data consumer.
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1 **15. (original)** An audio generation system as recited in claim 13,
2 wherein at least two of the logical buses correspond to the same audio wave data
3 consumer.

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5 **16. (original)** An audio generation system as recited in claim 13,
6 wherein a plurality of audio wave data streams are assigned to at least one of the
7 logical buses.

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9 **17. (original)** An audio generation system as recited in claim 13,
10 wherein an audio wave data consumer is a data buffer that buffers one or more of
11 the streams of audio wave data.

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13 **18. (original)** An audio generation system as recited in claim 13,
14 wherein an audio wave data consumer effects-processes one or more of the
15 streams of audio wave data.

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17 **19. (original)** An audio generation system as recited in claim 13,
18 wherein an audio wave data consumer is a data buffer that buffers one or more of
19 the streams of audio wave data and effects-processes the buffered audio wave
20 data.

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22 **20. (currently amended)** An audio generation system as recited in
23 claim 13, wherein the audio wave data sources are software components.
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1 **21. (currently amended)** An audio generation system as recited in
2 claim 13, wherein the audio wave data sources are programming objects having
3 interfaces that are callable by a ~~software component~~ programmed application to
4 generate the ~~one or more~~ streams of audio wave data.

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6 **22. (currently amended)** An audio generation system as recited in
7 claim 13, wherein the ~~sources include one or more synthesizers that generate the~~
8 ~~one or more~~ streams of audio wave data are generated by at least an additional
9 synthesizer software component.

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11 **23. (currently amended)** An audio generation system as recited in
12 claim 13, wherein ~~the sources include~~ a plurality of ~~synthesizers that~~ synthesizer
13 software components generate the ~~one or more~~ streams of audio wave data,
14 wherein at least one of the ~~synthesizers~~ synthesizer software components generates
15 a plurality of outputs, and wherein respective ones of the outputs are provided to
16 different respective logical buses.

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18 **24. (canceled)**
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1 **25. (currently amended)** An audio generation system, comprising:
2 a synthesizer ~~that generates~~ software component configured to generate
3 multiple streams of audio wave data in response to receiving one or more
4 synthesizer MIDI instructions;

5 a plurality of audio ~~wave data consumers that~~ data buffers configured to
6 receive the multiple streams of audio wave data;

7 a software component ~~that dynamically generates~~ configured to
8 dynamically generate a plurality of logical buses ~~in response to a need associated~~
9 ~~with receiving~~ instantiated as software components to route the multiple streams
10 of audio wave data, an individual logical bus configured to correspond to an audio
11 data buffer ~~wave data consumer~~, receive one or more of the streams of audio wave
12 data, and route the one or more streams of audio wave data to the audio data buffer
13 ~~wave data consumer~~; and

14 wherein the synthesizer software component is further configured to route
15 at least one of the streams of audio wave data to different ones of the logical
16 buses.

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18 **26. (currently amended)** An audio generation system as recited in
19 claim 25, wherein a second logical bus is configured to correspond to the audio
20 data buffer ~~wave data consumer~~, receive one or more additional streams of audio
21 wave data, and route the one or more additional streams of audio wave data to the
22 audio data buffer ~~wave data consumer~~.

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1 **27. (currently amended)** An audio generation system as recited in
2 claim 25, wherein the synthesizer software component has a channel that generates
3 a stream of audio wave data and that is configurable to route the stream of audio
4 wave data to the individual logical bus and is further configured to dynamically
5 release at least one of the logical buses when no longer needed.

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7 **28. (currently amended)** An audio generation system as recited in
8 claim 25, wherein the synthesizer software component has a channel that generates
9 a stream of audio wave data and that is configurable to route the stream of audio
10 wave data to a plurality of the logical buses, and wherein the logical buses receive
11 the stream of audio wave data and route the stream of audio wave data to a
12 plurality of corresponding audio data buffers ~~wave data consumers~~.

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14 **29. (currently amended)** An audio generation system as recited in
15 claim 25, wherein the synthesizer software component has a plurality of channels
16 that each generate a stream of audio wave data and that are configurable to route at
17 least one of the streams of audio wave data to a plurality of the logical buses, and
18 wherein the logical buses receive the streams of audio wave data and route the
19 streams of audio wave data to a plurality of corresponding audio data buffers ~~wave~~
20 ~~data consumers~~.

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22 **30-31. (canceled)**
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1 **32. (currently amended)** An audio generation system as recited in
2 claim 25, further comprising a second synthesizer software component configured
3 to generate additional streams of audio wave data, and wherein the individual
4 logical bus is configured to receive one or more of the additional streams of audio
5 wave data and route the additional streams of audio wave data to the audio data
6 buffer ~~wave data consumer~~.

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8 **33. (currently amended)** An audio generation system as recited in
9 claim 25, further comprising a second synthesizer software component configured
10 to generate additional streams of audio wave data, and wherein a second logical
11 bus is configured to correspond to the audio data buffer ~~wave data consumer~~,
12 receive one or more of the additional streams of audio wave data, and route the
13 additional streams of audio wave data to the audio data buffer ~~wave data~~
14 ~~consumer~~.

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16 **34. (currently amended)** An audio generation system as recited in
17 claim 25, further comprising a data structure to correlate which of the logical
18 buses correspond to an audio data buffer ~~wave data consumer~~.

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20 **35. (currently amended)** An audio generation system as recited in
21 claim 25, further comprising a data structure to correlate which of the logical
22 buses correspond to an audio data buffer ~~wave data consumer~~, wherein the audio
23 data buffer ~~wave data consumer~~ receives streams of audio wave data from the
24 corresponding logical buses.
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2 **36. (currently amended)** A computer-based audio generation
3 system, comprising:

4 a plurality of logical bus objects instantiated as software components
5 configured to receive audio wave data, wherein each logical bus object
6 corresponds to an audio data buffer wave data consumer, wherein each logical bus
7 object is dynamically generated ~~in response to a need associated with receiving to~~
8 route the audio wave data to a corresponding audio data buffer, and wherein at
9 least one of the logical bus objects can be dynamically released when no longer
10 needed to route a stream of audio wave data;

11 a data structure that correlates each logical bus object according to a
12 function of an audio data buffer wave data consumer that corresponds to a logical
13 bus object; and

14 wherein one or more streams of audio wave data are assigned to a logical
15 bus object based on the function of an audio data buffer wave data consumer that
16 corresponds to the logical bus object.

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18 **37. (currently amended)** A computer-based audio generation
19 system as recited in claim 36, wherein a logical bus object receives one or more of
20 the assigned audio wave data streams and routes the audio wave data streams to
21 the corresponding audio data buffer wave data consumer.

1 **38. (currently amended)** A computer-based audio generation
2 system as recited in claim 36, further comprising a synthesizer that generates a
3 plurality of streams of audio wave data, wherein at least one of the streams of
4 audio wave data is provided to different respective logical buses.

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6 **39. (currently amended)** A computer-based audio generation
7 system as recited in claim 36, further comprising a synthesizer that generates the
8 one or more streams of audio wave data in response to a MIDI instruction.

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10 **40. (currently amended)** A computer-based audio generation
11 system as recited in claim 36, further comprising an audio wave data generation
12 object configured to receive audio content and an instruction to generate the one or
13 more streams of audio wave data.

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15 **41. (currently amended)** A computer-based audio generation
16 system as recited in claim 36, wherein each logical bus object corresponds to a
17 single audio data buffer ~~wave data consumer~~.

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19 **42. (currently amended)** A computer-based audio generation
20 system as recited in claim 36, wherein at least two of the logical bus objects
21 correspond to the same audio data buffer ~~wave data consumer~~.

1 **43. (currently amended)** A computer-based audio generation
2 system as recited in claim 36, wherein a plurality of audio wave data streams are
3 assigned to at least one of the logical bus objects.

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5 **44. (currently amended)** A data structure for an audio processing
6 system implemented in a computing device, comprising:

7 a bus identifier parameter to uniquely identify a logical bus that is
8 dynamically instantiated as a software component, and that corresponds to an
9 audio data buffer wave data consumer;

10 a function identifier parameter to identify an effects-processing function of
11 the audio data buffer wave data consumer;

12 a programming reference to identify the audio data buffer wave data
13 consumer; and

14 wherein at least one stream of audio wave data is routed to a plurality of
15 different logical buses, ~~with~~ the bus identifier parameter being defined according
16 to the function identifier parameter of the corresponding audio data buffer wave
17 data consumer.

1 **45. (currently amended)** A method, comprising:

2 ~~providing generating one or more streams of audio wave data with an audio~~
3 ~~wave data generation software component configured to receive when receiving~~
4 ~~audio content and an a MIDI instruction to generate one or more streams of audio~~
5 ~~wave data;~~

6 ~~providing an audio data buffer wave data consumer component configured~~
7 ~~to receive the one or more streams of audio wave data;~~

8 ~~dynamically generating at least one logical bus component components~~
9 ~~instantiated as software components in response to a need associated with~~
10 ~~receiving the streams of audio wave data, the logical buses configured to route the~~
11 ~~one or more streams of audio wave data to the audio data buffer wave data~~
12 ~~consumer component; and~~

13 ~~dynamically releasing at least one of the logical buses bus components~~
14 ~~when no longer needed to route a stream of audio wave data.~~

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16 **46. (currently amended)** A method as recited in claim 45, wherein
17 the audio wave data generation software component is a synthesizer.

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19 **47. (currently amended)** A method as recited in claim 45, wherein
20 the audio data buffer wave data consumer component ~~is a data buffer that~~
21 performs an action of buffering audio wave data.
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1 **48. (currently amended)** A method as recited in claim 45, wherein
2 the audio data buffer ~~wave data consumer component~~ performs an action of
3 effects-processing the audio wave data.

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5 **49. (previously presented)** A method as recited in claim 45, further
6 comprising assigning a given one of the streams of audio wave data to a plurality
7 of different logical bus components.

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9 **50. (original)** A method as recited in claim 45, further comprising
10 assigning one or more of the streams of audio wave data to the logical bus
11 component.

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13 **51. (original)** One or more computer-readable media comprising
14 computer-executable instructions that, when executed, direct a computing system
15 to perform the method of claim 45.

1 **52. (currently amended)** A method, comprising:
2 receiving a synthesizer MIDI instruction to generate multiple streams of
3 audio wave data with a synthesizer software component;
4 dynamically generating logical buses instantiated as software components
5 ~~in response to a need associated with receiving the streams of audio wave data~~, the
6 logical buses each corresponding to an audio data buffer ~~wave data consumer~~;
7 creating a data structure and designating which of the logical buses
8 correspond to an respective audio data buffers ~~wave data consumer~~;
9 assigning at least one of the multiple streams of audio wave data to a
10 plurality of the logical buses;
11 routing an audio wave data stream assigned to a particular logical bus to the
12 audio data buffer ~~wave data consumer~~ corresponding to said particular logical bus;
13 and
14 dynamically releasing at least one of the logical buses when no longer
15 needed to route the audio wave data stream to the audio data buffer.

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17 **53. (original)** A method as recited in claim 52, wherein a plurality of
18 audio wave data streams are assigned to at least one of the logical buses.

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20 **54. (currently amended)** A method as recited in claim 52, wherein
21 each logical bus corresponds to a single audio data buffer ~~wave data consumer~~.
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1 **55. (currently amended)** A method as recited in claim 52, wherein
2 at least two of the logical buses correspond to the same audio data buffer ~~wave~~
3 ~~data consumer~~.

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5 **56. (original)** One or more computer-readable media comprising
6 computer-executable instructions that, when executed, direct a computing system
7 to perform the method of claim 52.
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